

TABLE 1-continued

GROUP	PREINSULT STATUS			
	MASS	LACTATE	GLUCOSE	n
Vehicle	293 ± 3	1.4 ± 0.1	9.0 ± 0.1	17
20 µg IGF-1	291 ± 5	1.6 ± 0.1	9.5 ± 0.2	18
20 µg Insulin	293 ± 4	1.5 ± 0.1	9.2 ± 0.2	18
Pre Vehicle	298 ± 4	1.5 ± 0.2	5.9 ± 0.3	11
Pre 20 µg IGF-1	300 ± 2	1.7 ± 0.2	6.4 ± 0.2	10

SUMMARY OF EXPERIMENTS

Recombinant human IGF-1 (in these experiments, dissolved in 0.5 M acetic acid at 20 µg/10 µl subsequently, diluted 9 times with 0.15M phosphate buffered saline to give a pH of about 7.3) administered in a single dose given in the period commencing with the time of the CNS injury or insult through to about 8 hours thereafter (and including a time point of about 2 hours after the neural insult) has shown therapeutic effect in reducing or eliminating the severity of CNS damage suffered after a neural insult. IGF-1 is especially useful in reducing infarction, and loss of glial cells and non-cholinergic neuronal cells associated with neural injury.

Thus it can be seen that in at least the preferred forms of the invention a method and/or medicament for treating CNS damage is provided which is able to substantially prevent or treat CNS damage. CNS damage may be associated with asphyxia, hypoxia, toxins, infarction, ischemia or trauma. It will be appreciated that the main application of the invention is to humans. However, the usefulness of the invention is not limited thereto and treatment of other non-human animals, especially mammals, is also within the scope of the invention.

The present invention, therefore, recognises the role of an administration of a medicament comprising IGF-1 and/or other compounds of similar effect into a patient at or following a CNS insult with the consequential result that CNS damage is minimised by preventing the otherwise consequential, self-induced damage that would occur following the injury, i.e. it is not involved with the repair of damage that has already occurred but to a treatment at, or subsequent, to the injury but before the consequential long term damage occurs thereby minimising the occurrence of such damage.

What is claimed is:

1. A method of treating neural damage suffered after a CNS insult affecting glia or other non-cholinergic cells in a

mammal, comprising administering to the central nervous system of said mammal an effective amount of IGF-1 and/or a biologically active analogue of IGF-1.

2. A method of claim 1 wherein the central nervous system injury is hypoxic injury.

3. A method of claim 1 wherein the central nervous system injury is ischemic injury.

4. A method of claim 1 wherein the central nervous system injury is traumatic injury.

5. A method of claim 1 wherein the central nervous system injury affects non-cholinergic neuronal cells.

6. A method of claim 1 wherein the central nervous system injury affects glial cells.

7. A method of claim 1 wherein the central nervous system injury is a consequence of Parkinson's disease.

8. A method of claim 1 wherein the central nervous system injury is a consequence of multiple sclerosis.

9. A method of claim 1 wherein the central nervous system injury is a consequence of a demyelinating disorder.

10. A method of claim 1 wherein the IGF-1 and/or biologically active analogue of IGF-1 is administered in the period from the time of the central nervous system injury to 100 hours after the injury.

11. A method of claim 1 wherein the IGF-1 and/or biologically active analogue of IGF-1 is administered at least once in the period from the time of the central nervous system injury to about 8 hours subsequently.

12. A method of claim 1 wherein the IGF-1 and/or biologically active analogue of IGF-1 is administered to the mammal in an amount from about 0.1 to 1000 µg of IGF-1 per 100 gm of body weight of the mammal.

13. A method of claim 1 wherein the biologically active analogue of IGF-1 is selected from the group consisting of insulin-like growth factor 2 (IGF-2) and truncated IGF-1 (des 1-3 IGF-1).

14. A method of claim 1 wherein the IGF-1 and/or biologically active analogue of IGF-1 is administered to the mammal through a surgically inserted shunt into the cerebro ventricle of the mammal.

15. A method of claim 1 wherein the IGF-1 and/or biologically active analogue of IGF-1 is administered peripherally into the mammal for passage into the lateral ventricle of the brain.

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1. A method of treating glial cells damaged from CNS injury, comprising administering to the CNS of a mammal in need thereof, an effective amount of IGF-1.
2. The method of Claim 1, wherein the CNS injury is an ischemic injury.
3. The method of Claim 1, wherein the CNS injury is an hypoxic injury.
4. The method of Claim 1, wherein the CNS injury is an asphyxia injury.
5. The method of Claim 1, wherein the CNS injury is an injury to the cortex.
6. The method of Claim 1, wherein the CNS injury is an injury to the dentate gyrus.
7. The method of Claim 1, wherein the CNS injury is an injury to the hippocampus.
8. The method of Claim 1, wherein the CNS injury is a traumatic injury.
9. The method of Claim 1, wherein the CNS injury is a chronic injury.
10. The method of Claim 9, wherein the chronic injury is a degenerative injury.
11. The method of Claim 10, wherein the degenerative injury is multiple sclerosis.
12. The method of Claim 10, wherein the degenerative injury is Parkinson's Disease.
13. A method of treating glial cells damaged from CNS injury, comprising administering to the CNS of a mammal in need thereof, an effective amount of a biological analog of IGF-1.
14. The method of Claim 13, wherein the CNS injury is an ischemic injury.
15. The method of Claim 13, wherein the CNS injury is an hypoxic injury.
16. The method of Claim 13, wherein the CNS injury is an asphyxia injury.
17. The method of Claim 13, wherein the CNS injury is an injury to the cortex.
18. The method of Claim 13, wherein the CNS injury is an injury to the dentate gyrus.
19. The method of Claim 13, wherein the CNS injury is an injury to the hippocampus.

20. The method of Claim 13, wherein the CNS injury is a traumatic injury.
21. The method of Claim 13, wherein the CNS injury is a chronic injury.
22. The method of Claim 21, wherein the chronic injury is a degenerative injury.
23. The method of Claim 22, wherein the degenerative injury is multiple sclerosis.
24. The method of Claim 22, wherein the degenerative injury is Parkinson's Disease.
25. A method of treating non-cholinergic cells damaged from CNS injury, comprising administering to the CNS of a mammal in need thereof, an effective amount of IGF-1.
26. The method of Claim 25, wherein the CNS injury is an ischemic injury.
27. The method of Claim 25, wherein the CNS injury is an hypoxic injury.
28. The method of Claim 25, wherein the CNS injury is an asphyxia injury.
29. The method of Claim 25, wherein the CNS injury is an injury to the cortex.
30. The method of Claim 25, wherein the CNS injury is an injury to the dentate gyrus.
31. The method of Claim 25, wherein the CNS injury is an injury to the hippocampus.
32. The method of Claim 25, wherein the CNS injury is a traumatic injury.
33. The method of Claim 25, wherein the CNS injury is a chronic injury.
34. The method of Claim 33, wherein the chronic injury is a degenerative injury.
35. The method of Claim 34, wherein the degenerative injury is multiple sclerosis.
36. The method of Claim 34, wherein the degenerative injury is Parkinson's Disease.
37. A method of treating non-cholinergic cells damaged from CNS injury, comprising administering to the CNS of a mammal in need thereof, an effective amount of a biological analog of IGF-1.
38. The method of Claim 37, wherein the CNS injury is an ischemic injury.
39. The method of Claim 37, wherein the CNS injury is an hypoxic injury.

40. The method of Claim 37, wherein the CNS injury is an asphyxia injury.
41. The method of Claim 37, wherein the CNS injury is an injury to the cortex.
42. The method of Claim 37, wherein the CNS injury is an injury to the dentate gyrus.
43. The method of Claim 37, wherein the CNS injury is an injury to the hippocampus.
44. The method of Claim 37, wherein the CNS injury is a traumatic injury.
45. The method of Claim 37, wherein the CNS injury is a chronic injury.
46. The method of Claim 45, wherein the chronic injury is a degenerative injury.
47. The method of Claim 46, wherein the degenerative injury is multiple sclerosis.
48. The method of Claim 46, wherein the degenerative injury is Parkinson's Disease.